DOCUMENT RESUME

ED 259 457 EA 017 917

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TITLE Recent Research on Teacher Beliefs and Its Use in the Improvement of Instruction.
PUB DATE Apr 85
NOTE 28p.; Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, IL, March 31-April 4, 1985).
PUB TYPE Information Analyses (070) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Beliefs; Elementary Secondary Education; Inservice Teacher Education; Interviews; Questionnaires; Research Methodology; Surveys; *Teacher Attitudes; Teacher Behavior; *Teacher Characteristics; *Teacher Effectiveness; Teacher Response; Teacher Role; *Values

ABSTRACT

This paper reviews significant literature on teachers' beliefs, offers support for the contention that current research is moving in a more utilitarian direction than in the past, and argues that continuing research into teachers' beliefs could be useful in improving teaching practice. The review focuses on five areas: (1) the different ways that teachers' beliefs have been defined and described; (2) the methodologies used to examine the beliefs of teachers; (3) the nature of the beliefs that teachers hold; (4) the relationship between what teachers believe and what they do; and (5) the attempt to define a teacher-effectiveness dimension based on the beliefs that teachers hold (or do not hold). The examination indicates that research is needed to clarify how a knowledge of teachers' beliefs can improve their practice; a methodology appropriate to such questions is suggested. The paper concludes with a discussion of how current knowledge of the relationships between teachers' beliefs and practices can inform inservice and preservice education. A bibliography is included. (TE)

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Recent Research on Teacher Beliefs and Its Use in the Improvement of Instruction

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Paper Presented at the Annual Meeting of the American Educational Research Association, Chicago, April 1985

I. Introduction

Teachers in American public schools frequently describe their teaching situation in such a way that one is left wondering whether or not teachers have any control over what takes place within the four walls of the classroom. One hears frequent discussions of administrative mandates, endless paperwork, teacher-proof curricula, and severe discipline problems that shape the educational environment.

With so many factors impinging on the classroom, one wonders if there is any way for teachers to participate in the shaping of their teaching environment. A potential tool teachers possess for meeting such a challenge is their own beliefs. Through his vision of what he believes should be taking place in American schools, the teacher could work to shape classroom events that are seemingly out of control. Before hastily making certain claims for a focus on the development of teacher beliefs, we should examine what is known about the relationship between what teachers believe and what teachers do.

In this paper I intend to review significant literature on teacher beliefs. Interest in the subject of teacher beliefs was at a relative high pitch in the 60's as researchers such as Wehling and Charters (1969) and Bob Burton Brown (1968, 1969) worked to develop instruments for measuring the beliefs of teachers. A recent renewal of interest in teacher beliefs seems due to the combined impetus of the research activity related to teacher thinking and the acceptance of ethnographic methodology in examining teaching practice.

Much of the focus of studies of teacher beliefs has been on developing instruments for measuring beliefs. As a result, whether research into teacher beliefs has any practical value or use has not

always been clear. In this paper, I offer support for the contention that current research is moving in a more utilitarian direction and argue that continuing research into teacher beliefs could be useful in improving teaching practice. My discussion of the literature will examine:

1) the different ways teacher beliefs have been defined and described,

2) the methodologies used to examine the beliefs of teachers,

3) the nature of beliefs that teachers hold,

4) the relationship between what teachers believe and what teachers do,

5) the attempt to define a teacher-effectiveness dimension based on the beliefs teachers hold (or do not hold).

This examination into the literature will reveal the gaps in our knowledge concerning teacher beliefs. These gaps will be translated into questions that need to be researched in order to clarify how a knowledge of teacher beliefs can improve teacher practice. Further, I shall also suggest methodology appropriate to such research questions. Finally, I shall discuss how current knowledge of the relationships between what teachers believe and what teachers do can inform practice related to inservice and teacher preservice education.

II. The Manner in Which Researchers Talk About Beliefs

Researchers working in the broad area of teacher beliefs have examined many different phenomena. Researchers have investigated broad philosophical systems of belief (Dobson, Hopkins, & Elsom, 1973; Young, 1981), broad philosophical systems of specifically educational beliefs (Boschee, Hein, & Prescott, 1978; Miller, 1981), values (Callaway, 1979; Greenstein & Greenstein, 1973), beliefs as they relate to specific educational areas such as music rehearsal management

(Brand, 1982), desirable science classroom behavior (Horak & Lunetta, 1979), beliefs concerning the importance of certain curricular areas (Schmidt & Buchman, 1983), reading (Bawden, Buike, & Duffy, 1979; Gove, 1983), and discipline (Etheridge, James, & Bryant, 1981; Glickman & Tomashiro, 1980). A group of researchers have shunned the practice of looking at teachers' beliefs as they relate to traditional schemes of educational thought, in order to help teachers articulate their beliefs in a personal, idiosyncratic way. Bussis, Chittenden, and Amarel (1976), Munby (1982, 1983), and Olson (1981) have all utilized techniques for helping teachers to articulate the beliefs that impact upon their practice in their own words. Ethnographic researchers such as Janesick (1978) have used participant observation techniques to examine the personal understanding teachers hold concerning their teaching.

The research I shall discuss in the next section represents what I view to be the most important research in the area of teacher beliefs. Much research has worked to discover where different teachers (i.e., elementary and secondary) fell on different inventories (i.e., progressive, perennialist, existentialist, etc.). Such research has yielded little in the way of significant knowledge. Much of the practical progress in teacher-belief research has occurred when researchers viewed beliefs as complex: Bob Burton Brown broke belief systems into interacting parts; Olson used the Kelly technique to reveal the individual teacher's idiosyncratic systems of belief. Most of the studies cited in the next section view beliefs in a more complex and more idiosyncratic manner. It is because important research questions have viewed beliefs in this way and because of the nature of important research questions

that need to be explored (and will be discussed later), that I advocate viewing beliefs in a complex and personal manner.

III. The Impact of Belief on Instruction: Research Findings

The relationship between the beliefs and the practices of teachers has been the focus of much recent research. Dobson and Dobson have argued that beliefs-practice congruency is an element of good teaching. "Teaching practice without the support provided by a well-developed philosophy (set of beliefs) proceeds at random, blindly. Teaching without purpose becomes mere activity to 'get things done' with little consideration of means-ends compatibility" (Dobson & Dobson, 1983, p. 21). Beliefs add a sense of purpose that drives practice.

Bauch (1982) reported that "educational beliefs do influence teaching practices thereby contributing to the context in which learning occurs" (p. 16). Working with a sample of 182 teachers from Goodlad's Study of Schooling, Bauch explored elementary school teachers' beliefs using a paper-and-pencil inventory, based on the work of Kerlinger. She assessed teacher practice through questionnaires, interviews, and direct observation of instruction. Basing her judgments on the belief dimensions of teacher discipline and control and student participation, Bauch labeled teachers as autocrats (scoring high on teacher control, but low on student participation), strategists (high on both); laissez-faire (low on both) or democrats (low on teacher control and high on student participation). Bauch's research revealed teaching behaviors that distinguished teachers with one philosophical system from teachers with another philosophical system. For instance, those labeled as autocrats tended to employ lecturing, writing, and test-taking as their primary

methodology. In contrast, democrats tended to promote student self-direction through such activities as class discussions, dramatizations, projects, and experiments.

Other researchers have supported the conclusion that teachers manifest a congruency between their beliefs and their practices. Dobson et al. (1973) found an association between elementary school teachers' beliefs concerning human nature and the type of nonverbal behavior they manifested in the classroom. Schmidt and Buchman (1983) found that elementary school teachers' beliefs regarding the importance of a certain subject area had an impact on the amount of time those teachers devoted to those subject areas. Schmidt and Buchman also noted that the amount of time devoted to a subject area affected the amount of pupil learning.

The ethnographic methodology of Janesick has provided a fruitful technique for actually seeing the consistency of beliefs and practice in one classroom context. Using extensive participant observation and interviews, Janesick examined the life of one master teacher's classroom. Because of her intensive look at one teacher, Janesick was able to demonstrate how conscious educational principles were actualized and reinforced in the classroom. This teacher believed that it was important to establish a group sense within his classroom, by promoting the values of respect and cooperation, before more academic concerns could be addressed. The ethnographic approach allows a view of the pervasiveness of these principles within the classroom.

It is appropriate at this juncture to touch on a point which I shall discuss further in another section of the paper. Up to this point, I have been talking about the relationship between beliefs and practice and beliefs-practice congruency without alluding to the direction of

that relationship. It is very possible that beliefs are a total result of, or a justification for practice. For instance, environmental factors could force the teacher to shape practice in a certain way. Misbehavior of students could cause teachers to abandon a small group discussion approach for a lecture-recitation approach. The district could mandate the use of a particular reading book based on a particular theory of reading that is inconsistent with the teacher's beliefs. The list of environmental factors could go on endlessly. A teacher could resort to certain practices because of environmental pressures and then adopt beliefs that are consistent with such practices. If this were in fact the truth, it would be pointless to speak of beliefs as a vision or guide for what teachers could do. Research has not been done on the interaction between the development of teacher beliefs and teacher practice. A case will be more forcefully made later in this paper, arguing that such research needs to be done in order to more clearly establish the direction of the beliefs-practice relationship.

The landmark work of Bob Burton Brown (1968, 1969) supports the conclusion that an association exists between beliefs and practice, and further suggests that the particular organization of beliefs a teacher holds is the primary factor that determines whether or not a congruence between beliefs and practice occurs. Brown developed the Personal Beliefs Inventory (PBI) and the Teacher Practice Inventory (TPI) to help him examine the agreement of individuals with both the general and educational philosophy of John Dewey. Brown also developed the Teacher Practice Observation Record (TPOR), an instrument for the direct observation of instruction that measures the extent to which individual practice is in agreement with the beliefs of John Dewey. Brown and others

have utilized these instruments in a variety of settings. In one study (Brown, 1968), Brown found that student teachers agreed with the educational philosophy of Dewey, but not with his broad philosophical views. In another study, Brown found that student teachers' practice tended to be consistent with beliefs when both the philosophical beliefs and educational beliefs of the teacher were in agreement with Dewey. In this sense, the consistency of philosophical belief serves as a predictor of beliefs/practice congruency. The beliefs that were most significantly related to practice were those involving the philosophical dimension of "permanence and change." The three items in the PBI related to this dimension are (1) "All 'truths' are relative," (2) "Nothing is or can be unchanging--absolutely certain," (3) "You can never prove that any fact is unconditionally true."

Teachers who accepted these ideas and were consistent with the beliefs of John Dewey on the PBI tended to manifest a practice congruent with Dewey's educational philosophy.

Brown tells us more than that there is a relationship between beliefs and practice. His work supports the conclusion that a congruence between beliefs and practice is more likely to exist when a teacher's broad philosophical system is consistent with his educational beliefs. Brown's work is significant in that it reflects a directionality to the relationship between beliefs and practice. It is the nature of the beliefs (the congruence between broad philosophical views and educational beliefs) that effects the beliefs-practice consistency. Brown's conclusion is an argument for viewing beliefs as the active shaper of practice and not the reverse. Further, Brown's research findings suggest

that the most significant belief factors shaping practice are broad, philosophical views, something often ignored in teacher education. If we can state that when philosophy and educational beliefs are consistent, belief shapes practice, we can also hypothesize that when one's educational beliefs do not flow out of one's world view, one's beliefs do not shape one's practice. We might then argue for the need to make the study of philosophy a more significant part of teacher education. Research such as Brown's could be usefully replicated based on philosophical systems other than John Dewey's.

Several studies have supported the contention that teacher beliefs can negatively interact with curricular innovations. Bussis et al. (1976) used an interview strategy developed by George Kelly to evaluate the effectiveness of teaching centers in helping 60 elementary school teachers implement an open-classroom approach. One discovery the researchers made was that a substantial percentage of the teachers held philosophies inconsistent with the open-classroom approach and dealt with the conflict by behaving in their traditional manner.

Another group of teachers who did not believe in the open-classroom approach followed the open-classroom program while experiencing a great deal of anxiety. For instance, this group of teachers encouraged group interaction in their classrooms but experienced a fear of management problems. Thirty-three percent of the teachers had beliefs about curriculum that contradicted the open-education approach and 50% had beliefs about children that contradicted open-educational philosophies. The researchers concluded that teachers need to have a philosophical commitment to an innovative program in order for it to work.

In a similar study, Olson (1981) used an interviewing technique based on the work of George Kelly to explore eight science teacher's implementation of an innovative science curriculum (Schools Council Integrated Science Project). The curriculum, based on the inquiry approach, emphasized the process of instruction (as opposed to content), free-ranging discussion periods, and a low-influence teaching style that encouraged the students to discover knowledge on their own. Olson found that teachers did not have a language for explaining the innovations in this program and, as a result, translated the program into their own frame of reference. For instance, open-ended discussion questions were used by one teacher as an opportunity to deliver information and by another as end-of-chapter, content-oriented questions that probed the students' knowledge of material. Discussion periods were viewed by one teacher as a time for students to freely talk without any teacher guidance, thus downplaying the importance of the discussion, and by another as "pure waffle." Teachers were unable to shift to a discovery mode and continued to view their role as information givers. The beliefs of these teachers served to shipwreck the innovations inherent in the program. These cases, which deal with curricular innovation, demonstrate instances where beliefs influenced practice.

The Bussis et al. and the Olson study investigate the relationship between beliefs and practice in another way. The conclusion the researchers draw is that teacher beliefs will have a rubber-band effect on practice when teachers are confronted with a teaching method that contains embedded beliefs not consistent with the teachers' own. The teachers' tendency will be to return to a practice that is more

consistent with his belief system. These studies offer more support for the contention that a relationship exists between teacher beliefs and teacher practice. But they also suggest something about the direction of the relationship. In the instances described, teachers had beliefs that affected practice, and not vice versa. This is the first support we have seen for the contention that beliefs create practice.

A second explanation for the results of this study could be offered. We do not know how the original beliefs developed. They could have grown as justifications for practice and now serve as a type of inertia insulating against change. Again, research needs to be done on the development of beliefs and practice.

A final conclusion that can be drawn from these two studies relates to initiating innovative curriculum designs: Curriculum planners and implementers need to consider the stated beliefs of the teachers when presenting curriculum innovations.

In contrast to the studies we have been looking at, some research suggests that beliefs have only a minimal effect upon practice, if any. For instance, in a review of literature concerning the relationship between theories about reading and elementary teacher reading practice, Duffy (1981) concluded that the three factors most greatly influencing practice were the nature of the students (i.e., income level, grade level, and ability level), the commercial reading material used in the school, and the desire or need to maintain a smooth activity flow. Observational studies cited suggest that the theories implicit in basal readers are major factors in shaping observable teaching practice related to reading instruction. The theory inherent in the text replaces

the teacher's theories about reading instruction. Duffy also lists demands of teacher peer pressure, pressure from the principal, and applicable accountability mandates as factors affecting teacher practice. Only after all these factors are taken into account does the teacher's personal theory of reading become a consideration. Duffy paints a picture of a teacher stepping out of college and into the classroom with a set of beliefs about reading. This novice teacher soon becomes overwhelmed by the classroom situation and theories must take a backseat to merely surviving in the classroom.

Duffy's literature review clearly conflicts with the research previously cited. Does a teacher's belief system have an association with a teacher's practice or doesn't it? The answer might very well be yes or no. Some research points to the conclusion that some teachers operate out of a system of beliefs and some do not. The work of Miller (1981) and Buchman (1983) are two examples of such research.

Miller developed a questionnaire on teacher belief systems that he administered to 520 prospective and practicing teachers registered at the University of Alberta. The questionnaire was designed to get at two dimensions of teacher beliefs: (1) teacher-centered as against a child-centered dimension, and (2) tough-minded (knowledge comes from scientific inquiry) compared to a tender-minded (knowledge comes from personal subjectivity, including intuition and emotion) dimension. Teachers whose beliefs clustered in one end of both dimensions were said to have a theoretical affiliation. If a teachers' beliefs clustered in the end of only one dimension, he was said to have an educational orientation. Fifty-eight percent of the teachers had neither an educational orientation nor a theoretical affiliation, while 32% had an educational orientation

and 9.8% had a theoretical framework. Of those teachers with an educational orientation, only 8.7% thought along the dimension of tough to tender-minded, suggesting a lack of teacher concern for epistemological issues. Ideologically, teachers tended toward a teacher-centered (18.4%) and a tender-minded (7%) orientation. Because the percentage of teachers holding a philosophical orientation is small, this data on the content of philosophy is less significant than the data concerning presence or absence of theoretical affiliation and/or educational orientation.

In many ways, the results of the Miller questionnaire are very similar to those of the Brown surveys (TPI, PBI). Both suggest that teachers' thinking may be lacking in complexity in that their broad philosophical beliefs are inconsistent with their educational beliefs, as shown by Brown, or that their belief systems are one dimensional or nonexistent, as shown by Miller.

In line with Miller and Brown, Buchman (1983) has argued that teachers can be differentiated based on the complexity of their thinking. Analyzing coded responses to an unstructured interview, Buchman categorized teachers in the following ways:

(1) Self-oriented. These teachers talked about their actions by appeals to tradition or with comments such as "That's the way I do things." These teachers seemed too emotionally involved to distance themselves from the concrete action taking place in the classroom.

(2) Role-oriented. These teachers talked about teaching principles and justified their actions by these principles. They were able to distance themselves from the action of the classroom and view the classroom in a more holistic manner.

in this study, 11 teachers were identified as role-oriented and 9 were identified as self-oriented. Buchman suggests that many teachers do not possess a sophisticated way of thinking about their teaching and therefore do not operate from a belief system; their manner of dealing with the teaching world is too focused on the concrete. These teachers focus on the concrete because they are submerged in the concrete. Other teachers are able to distance themselves from the day-to-day events and are able to reflect on their teaching situation, and so are able to apply teaching principles in their classrooms.

It is more than just interesting, therefore, that some teachers possess a sophisticated philosophy and some do not. This difference implies an effectiveness dimension to the issue of teacher beliefs. As described by Buchman, the role-oriented teacher is better able to consciously and intelligently shape his instruction than the self-oriented teacher. There is support in these three studies (Brown, Buchman, Miller) that the nature of one's beliefs in relation to practice can have a positive or a negative effect on the quality of instruction.

The conclusions from the research into teacher beliefs creates a framework with many holes. There is a relationship between what teacher's believe and what they do. There is also some support for the conclusion that some teachers operate from a sophisticated system of beliefs and some do not. The holes in the framework suggest other research needs to be done. This research includes filling in holes related to knowledge concerning the development of beliefs in association with practice in order to get a better sense of that process, knowledge concerning whether or not there are qualitative differences in the way teachers think (i.e., role oriented v. self-oriented), and knowledge

concerning whether or not there is any association between the way teachers think and a teacher effectiveness/noneffectiveness dimension. This will be discussed later in the paper.

IV. Methodology

The choice of research methodology for assessing teacher beliefs depends on both the research question being asked and the manner in which the researcher defines beliefs. In addition, the researcher needs to utilize an instrument which accurately portrays the beliefs of the teacher. These three factors shall serve as criteria for determining which methodology would be the most effective for evaluating teacher beliefs.

The most popular method, by far, for researching teacher beliefs has been paper-and-pencil inventories. These instruments generally serve to define where the teacher's beliefs fall on some continuum (i.e., teacher-centered v. student-centered) or where they fit within a particular belief scheme (i.e., existentialist, pragmatist, progressive). The paper-and-pencil inventories are used to describe the content of teacher's beliefs. Much of the research using these instruments has served to answer the questions: How can teachers be categorized based on their beliefs? Is there an association between belief category and type of educator (i.e., elementary v. secondary) or stage in teacher career (student teacher v. teacher in the field)? Examples of such research include Starkey and Barr (1972) and Vickery and Brown (1967). Starkey and Barr demonstrated that elementary teacher education students tend to be more existential, pragmatic, and phenomenological than secondary

teacher education students. Of the two, secondary students tend to be more realistic. Vickery and Brown examined how several categories of individuals (including student teachers, cooperating teachers, principals, academicians) fell on a scale of exeprimentalism (Brown's PBI and TPI). Cooperating teachers were found to be the least experimental. Education professors were significantly more experimental than the others.

One criticism of the paper-and-pencil inventories lies in its ability to permit a valid depiction of a teacher's beliefs. The paper-and-pencil inventory presents a scheme of beliefs (i.e., philosophical systems, value systems) and a language in which these schemes are couched which is not necessarily the teachers. The scheme and language is chosen by the author. This process ignores the personal language individuals use to describe their beliefs as well as the personal ways individuals organize their beliefs into systems. In addition, it is not always clear how educators taking a particular inventory are interpreting the language and concepts within the instrument. For instance, in Brown's PBI, there are statements such as "All 'truths' are relative," and "Man doesn't have a 'spirit' which is separable from his body and the material world." Each statement is packed with implication and the subject's agreement or disagreement depends upon his interpretation of words such as "truths" and "spirits," ideas which philosophers and theologians have been debating for centuries. Paper-and-pencil instruments present serious validity questions.

A second technique researchers have used to get at teacher beliefs is interviews. In recent years, educational researchers have turned to the work of clinical psychologist, George Kelly (1955) for a model that would help them delve into the beliefs of teachers.

Bussis et al. (1976), Munby (1982, 1983), and Olson (1981) have all used the Kelly grid interview technique (Kelly, 1955) to help teachers describe their belief systems. The Kelly technique is different from the paper-and-pencil inventory in that the person interviewed is able to conceptualize his own belief scheme in his own words. In this technique, as applied by Munby (1982, 1983), the interviewer begins by asking the teacher to state good teaching practices seen in his classroom. These are written down on cards. The teacher then puts practices together into what he sees to be appropriate groupings. Through this grouping procedure, conceptual schemes that permit the teacher to understand classroom events (that is, the teacher's constructs) are elicited. Through a factor-analysis procedure, the teacher's constructs are more clearly delineated. In a lengthy second interview, the researcher and teacher explore the constructs to develop the principles within the teacher's belief system that affect instruction. As part of an ethnographic study of one teacher, Janesick (1978) used interviews in conjunction with participant observation, to assess teacher beliefs. Young (1981) used a variety of ethnographic techniques including a semantic taxonomy interview to help teachers articulate their epistemological beliefs. Gove (1983) developed a structured interview to help teachers explore their beliefs concerning reading.

Several researchers have used a Q-sort technique to help teachers explore what they believe. Horak and Lunetta (1979) developed an 80-statement sort to get at teachers' beliefs about appropriate science classroom behavior. Ignatovich, Cusick, and Ray (1979) compared the belief structure of teachers with that of administrators who were employing the rational-management model. In the Ignatovich et al. study,

teachers were asked to sort 47 cards stating educational beliefs into 9 piles on a continuum from very strongly agree to very strongly disagree. Through a Q-analysis computer program, sortings were factor analyzed to determine differences and commonalities among the ways various individuals grouped their beliefs.

The interviewing techniques (i.e., Kelly repertory grid technique, Q-sort) and the ethnographic techniques (i.e., Janesick and Young) are preferable to the paper-and-pencil inventories for examining the beliefs of teachers. First of all, they will tend to be more valid because they attempt to look at beliefs utilizing the underlying understandings of the teacher. For example, the Kelly technique permits the teacher to couch his beliefs in his own language and organize the beliefs using his own constructs. Secondly, as discussed in section two, these methodologies permit the researcher to get a richer, more complex and more personal view of the teacher's belief. This is the view of beliefs advocated in section two. Through this view the researcher is able to go beyond the content of the teacher's beliefs to explore both the content and structure of the beliefs. This permits the researcher to do more than categorize teachers based on their beliefs. They can get a clearer picture of the subtle nature of beliefs and as a result explore how this effects instruction. By using such techniques, researchers can move beyond asking questions about beliefs related to examining how categories of teachers fit into various philosophical schemes. Some of the important research issues which could be explored using such techniques are discussed in the next section.

V. Suggestions for Further Research into the Area of Teacher Beliefs

The most fundamental issue for researchers into the area of teacher beliefs to consider is the direction of the relationship between beliefs and practice. One conception of this relationship, previously discussed, describes a teacher who shapes his practice to accommodate the educational environment and only then adapts a belief system as a justification for his practice. Such an individual would certainly manifest a beliefs/practice congruency, but would not in fact resemble the teacher who uses his personal vision to shape the instruction. This latter teacher would have a belief system that reflects environmental demands, but is not controlled by them. His vision or set of beliefs would both respond to the classroom environment and work to shape the events taking place in the classroom. Future research that looks at the beliefs of teachers needs to ascertain the extent to which beliefs effect practice.

A developmental investigation of beliefs and practices would be useful in establishing the direction of their relationship. One time in a teacher's career when his practice is clearly developing is during his student teaching experience and his first two years of practice. I also hypothesize that this is a time when a teacher's belief system is being shaped. A useful research study would be one that examines the development of belief and practice during this stage of the teacher's career to establish the relationship of the development. Does practice grow from the individual's beliefs or do beliefs change as a result of the practice shaped by the classroom environment? The development of beliefs and practice of teachers of varying years of experience might both examine the extent to which teachers' beliefs and practices change

throughout their careers and ascertain the direction of the relationship between beliefs and practice.

It is important to further examine teacher beliefs as they relate to teacher effectiveness. Are there in fact two categories of teachers as suggested by the Buchman role-oriented/self-oriented designations? The hypothesis that such a distinction exists needs to be examined using methodologies such as the Kelly grid technique. Also, if such a conceptual scheme can be empirically established, would there be a relationship between this scheme and the conceptual-levels models created by Harvey, Hunt, and Schroder (1961). Harvey et al. have argued in their classic work, Conceptual Systems and Personality Organization (1961), that individuals operate at different developmental stages (conceptual levels) on a continuum from concreteness to abstractness. Buchman's role-oriented/self-oriented teachers could be measured using a device for evaluating their conceptual level to see if in fact role-oriented teachers are more abstract and self-oriented teachers are more concrete. Finally, in terms of the teacher effectiveness dimension, it would be important to examine the differences in practice between role-oriented and self-oriented teachers. If, in fact, there are differences in the beliefs teachers hold about teaching, does this difference manifest itself in practice? If there are differences in practice, do they result in differences in teacher effectiveness? (Various measures of effectiveness would need to be looked at.) If a clear link between teacher beliefs and effective practice could be established, both preservice and inservice teacher education could be affected. More attention would have to be given to helping teachers develop and implement their beliefs.

Contradictions presented previously in this paper suggest a need for further research in another area. I have advocated a methodology which acknowledges a complexity and a personal aspect to the belief systems of teachers. I have advocated the use of interviewing and ethnographic techniques and have discouraged the use of paper-and-pencil inventories. Despite this, I have placed the work of Bob Burton Brown, which is based on a paper-and-pencil inventory, in a favorable light. I am intrigued by Brown's work because it fulfills one of the criteria for an apt view of teacher beliefs; it acknowledges the complexity of the teachers belief system. Despite this fact, I must still question the validity of this and other paper-and-pencil inventories as a tool for getting at the beliefs of teachers. I have used other research to further support ideas proposed by Brown. In this spirit, it would be useful to triangulate data gathered from a qualitative technique such as the Kelly grid technique with data gathered from paper-and-pencil inventories such as Brown, Miller, or Wehling and Charters. By looking at the beliefs of the same subject, using the same instrument, it would be useful to ascertain the comparability of the two techniques. To what extent do the instruments yield data which overlaps or diverges or is complimentary? How valid are the two methodologies? What role could paper-and-pencil inventory play in answering the sorts of research questions posed in this section?

Interviewing and ethnographic techniques should serve as the primary methodologies to get at research questions posed in this section. The sorts of differences between role-oriented and self-oriented teachers suggests a qualitative difference in the structure of thinking between

individuals in these two categories. Techniques such as the Kelly grid acknowledge the personal manner in which individuals organize their thinking. They emphasize a look at structure as well as content of thinking and consider the interrelationship between these two. By permitting the subject to use his own language and his own constructs to present his beliefs, researchers will be in a more apt position to distinguish between teacher styles of thinking and to examine the relation of this style to an effectiveness dimension.

VI. Concluding Remarks

Teacher education in America, both preservice and inservice, has always had a tendency to be practice-oriented as opposed to theory-oriented. Given the nature and the limits of the knowledge we have regarding the relationship between teacher beliefs and practice, this tendency is not totally unwarranted. Nevertheless a growing body of research literature suggests that the beliefs teachers hold are an important determinant of teaching behavior. The work of Brown, Olson, and others for instance suggests that beliefs do guide practice. Further, the work of Buchman suggests that those teachers who do operate from beliefs and theory are in fact more effective teachers than those who operate at a more concrete level. Findings from research on teacher beliefs justify devoting more of the precious time in teacher education to the issue of teacher beliefs. In fact, Brown might argue that time should be devoted to dealing with both educational beliefs and broad philosophical beliefs. In the context of a teacher education program, this could be done by helping teachers to evolve a personal statement of philosophy, both orally and written, throughout their training.

Devoting such time to philosophical development would be more warranted if a clearer connection between teacher beliefs and teacher effectiveness could in fact be established. The establishment of a firm connection between particular belief systems and effective teaching would justify a major change in American teacher education. I would suggest that the development of a personal teaching philosophy and the means to apply and modify (as opposed to abandon) that philosophy in light of practice be the core of teacher education. I would suggest that techniques such as Clinical Supervision be used to help both preservice and inservice teachers explore the relationship between their beliefs and their practice. And I would suggest that more inservice time be devoted to helping teachers to examine their beliefs.

The orientation toward practice as a more important concern than theory is deeply embedded in the American educational system. Tearing us away from such a pragmatic approach would require establishing whether teachers with a more abstract, theoretical, philosophical approach are more effective than teachers who are concrete and atheoretical. The ability to use beliefs and theory to shape classroom practice could, indeed, be a prime factor in helping teachers to be more effective. The groundwork has been laid for examining this issue which warrants continued research.

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